



## SEQUENCE LISTING

<110> Ulrich, Robert G.  
 <120> Bacterial Superantigen Vaccines  
 <130> 003/233/SAP  
 <140> 10/002,784  
 <141> 2001-11-26  
 <150> 08/882,431; 09/144,776  
 <151> 97-06-25; 98-09-01  
 <160> 40  
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 <212> DNA  
 <213> Artificial sequence  
 <220>  
 <223> mutant staphylococcal enterotoxin A periplasmic  
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tcacgatcaa	tttcgacagc	atactatatt	gtttaaaggc	240
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taactgttca	ggagttggat	cttcaagcaa	gacgttatct	560
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&lt;210&gt; 2

&lt;211&gt; 257

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant staphylococcal enterotoxin A periplasmic

&lt;400&gt; 2

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Phe Ile Ala Leu Thr Leu Thr Thr Ser Pro
15      20
Leu Val Asn Gly Ser Glu Lys Ser Glu Glu
25      30
Ile Asn Glu Lys Asp Leu Arg Lys Lys Ser
35      40
Glu Leu Gln Gly Thr Ala Leu Gly Asn Leu
45      50
Lys Gln Ile Tyr Tyr Tyr Asn Glu Lys Ala
55      60
Lys Thr Glu Asn Lys Glu Ser His Asp Gln
65      70
Phe Arg Gln His Thr Ile Leu Phe Lys Gly
75      80
Phe Phe Thr Asp His Ser Trp Tyr Asn Asp
85      90
Leu Leu Val Arg Phe Asp Ser Lys Asp Ile
95      100
Val Asp Lys Tyr Lys Gly Lys Lys Val Asp
105     110
Leu Tyr Gly Ala Tyr Ala Gly Tyr Gln Cys
115     120
Ala Gly Gly Thr Pro Asn Lys Thr Ala Cys
125     130
Met Tyr Gly Gly Val Thr Leu His Asp Asn
135     140
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Ile Asn Leu Trp Leu Asp Gly Lys Gln Asn
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Thr Val Pro Leu Glu Thr Val Lys Thr Asn

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Tyr Asn Leu Tyr Asn Ser Asp Val Phe Asp		
	195	200
Gly Lys Val Gln Arg Gly Leu Ile Val Phe		
	205	210
His Thr Ser Thr Glu Pro Ser Val Asn Tyr		
	215	220
Asp Leu Phe Gly Ala Gln Gly Gln Tyr Ser		
	225	230
Asn Thr Leu leu Arg Ile Tyr Arg Asp Asn		
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Lys Thr Ile Asn Ser Glu Asn Met His Ile		
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Asp Ile Tyr Leu Tyr Thr Ser		
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&lt;210&gt; 3

&lt;211&gt; 757

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant staphylococcal enterotoxin A cytoplasmic

&lt;400&gt; 3

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taaaggcttt ttacagatc attcgtggta taacgattta	200
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aaaaatgtaa ctgttcagga gttggatctt caagcaagac	480
gttatattaca ggaaaaatat aatttatata actctgatgt	520
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acttctacag aaccttcggt taattacgat ttatttggtg	600
ctcaaggaca gtattcaaat acactattaa gaatatatag	640
agataataaaa acgattaact ctgaaaacat gcataattgat	680
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4/33

<210> 4

<211> 233

<212> PRT

<213> artificial sequence

<220>

<223> mutant staphylococcal enterotoxin A cytoplasmic

<400> 4

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				15					20	
Thr	Ala	Leu	Gly	Asn	Leu	Lys	Gln	Ile	Tyr	
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Tyr	Tyr	Asn	Glu	Lys	Ala	Lys	Thr	Glu	Asn	
				35					40	
Lys	Glu	Ser	His	Asp	Gln	Phe	Arg	Gln	His	
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Thr	Ile	Leu	Phe	Lys	Gly	Phe	Phe	Thr	Asp	
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His	Ser	Trp	Tyr	Asn	Asp	Leu	Leu	Val	Arg	
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Phe	Asp	Ser	Lys	Asp	Ile	Val	Asp	Lys	Tyr	
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				85					90	
Tyr	Ala	Gly	Tyr	Gln	Cys	Ala	Gly	Gly	Thr	
				95					100	
Pro	Asn	Lys	Thr	Ala	Cys	Met	Tyr	Gly	Gly	
				105					110	
Val	Thr	Leu	His	Asp	Asn	Asn	Arg	Leu	Thr	
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Glu	Glu	Lys	Lys	Val	Pro	Ile	Asn	Leu	Trp	
				125					130	
Leu	Asp	Gly	Lys	Gln	Asn	Thr	Val	Pro	Leu	
				135					140	
Glu	Thr	Val	Lys	Thr	Asn	Lys	Lys	Asn	Val	
				145					150	
Thr	Val	Gln	Glu	Leu	Asp	Leu	Gln	Ala	Arg	
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Arg	Tyr	Leu	Gln	Glu	Lys	Tyr	Asn	Leu	Tyr	
				165					170	
Asn	Ser	Asp	Val	Phe	Asp	Gly	Lys	Val	Gln	
				175					180	
Arg	Gly	Leu	Ile	Val	Phe	His	Thr	Ser	Thr	
				185					190	
Glu	Pro	Ser	Val	Asn	Tyr	Asp	Leu	Phe	Gly	
				195					200	

Ala Gln Gly Gln Tyr Ser Asn Thr Leu Leu  
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 Arg Ile Tyr Arg Asp Asn Lys Thr Ile Asn  
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 225 230  
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<210> 5

<211> 1712

<212> DNA

<213> Artificial sequence

<220>

<223> mutant staphylococcal enterotoxin B

<400> 5

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agcagagagt	caaccagatc	ctaaaccaga	tgagttgcac	360
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ttttgtatga	tgataatcat	gtatcagcaa	taaacgttaa	440
atctatagat	caatttctat	actttgactt	aatatattct	480
attaaggaca	ctaagttagg	ggattatgat	aatgttcgag	520
tcgaatttaa	aaacaaagat	ttagctgata	aatacaaaga	560
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tgagcataat	ggaaaccaat	tagataaata	tagaagtatt	720
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tatttaatga	tgtacaatga	caataaaatg	gttgattcta	1000
aagaatgtgaa	gattgaagtt	tatcttacga	caaagaaaaa	1040
gtgaaattat	attttagaaa	agtaaatatg	aagagttagt	1080
aattaaggca	ggcacttata	gagtacctgc	cttttcta	1120
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aagaatgaaa acctgaacct actgttgta aaactaaagc 1640
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<210> 6

<211> 266

<212> PRT

<213> Artificial sequence

<220>

<223> mutant staphylococcal enterotoxin B

<400> 6

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      25                             30
Pro Asp Pro Lys Pro Asp Glu Leu His Lys
      35                             40
Ser Ser Lys Phe Thr Gly Leu Met Glu Asp
      45                             50
Met Lys Val Leu Tyr Asp Asp Asn His Val
      55                             60
Ser Ala Ile Asn Val Lys Ser Ile Asp Gln
      65                             70
Phe Leu Tyr Phe Asp Leu Ile Tyr Ser Ile
      75                             80
Lys Asp Thr Lys Leu Gly Asp Tyr Asp Asn
      85                             90
Val Arg Val Glu Phe Lys Asn Lys Asp Leu
      95                             100
Ala Asp Lys Tyr Lys Asp Lys Tyr Val Asp
      105                            110
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      115                            120
Tyr Phe Ser Lys Lys Thr Asn Asp Ile Asn
      125                            130
Ser His Gln Thr Asp Lys Arg Lys Thr Cys

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	165		170
Leu Ser Phe Asp	Val Gln Thr Asn Lys	Lys	
	175		180
Lys Val Thr Ala	Gln Glu Leu Asp Tyr	Leu	
	185		190
Thr Arg His Tyr	Leu Val Lys Asn Lys	Lys	
	195		200
Leu Tyr Glu Phe	Asn Asn Ser Pro Tyr	Glu	
	205		210
Thr Gly Tyr Ile	Lys Phe Ile Glu Asn	Glu	
	215		220
Asn Ser Phe Trp	Tyr Asp Met Met Pro	Ala	
	225		230
Pro Gly Asp Lys	Phe Ala Gln Ser Lys	Tyr	
	235		240
Leu Met Met Tyr	Asn Asp Asn Lys Met	Val	
	245		250
Asp Ser Lys Asp	Val Lys Ile Glu Val	Tyr	
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Leu Thr Thr Lys	Lys Lys		
	265		

&lt;210&gt; 7

&lt;211&gt; 1712

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant staphylococcal enterotoxin B periplasmic

&lt;400&gt; 7

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tgagcataat ggaaaccaat tagataaata tagaagtatt 720
actgttcggg tatttgaaga tggtaaaaat ttattatctt 760
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catgatgcct gcaccaggag ataaatttga ccaatctaaa 960
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aagaatgaaa acctgaacct actgttgta aaactaaagc 1640
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ttattttctc ctataactta tttgcaatcg at 1712

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&lt;210&gt; 8

&lt;211&gt; 266

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant staphylococcal enterotoxin B periplasmic

&lt;400&gt; 8

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Met Tyr Lys Arg Leu Phe Ile Ser His Val
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Ile Leu Ile Phe Ala Leu Ile Leu Val Ile
                    15                      20
Ser Thr Pro Asn Val Leu Ala Glu Ser Gln
                    25                      30
Pro Asp Pro Lys Pro Asp Glu Leu His Lys
                    35                      40

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Ser	Ala	Ile	Asn	Val	Lys	Ser	Ile	Asp	Gln	
				65					70	
Phe	Arg	Tyr	Phe	Asp	Leu	Ile	Tyr	Ser	Ile	
				75					80	
Lys	Asp	Thr	Lys	Leu	Gly	Asn	Tyr	Asp	Asn	
				85					90	
Val	Arg	Val	Glu	Phe	Lys	Asn	Lys	Asp	Leu	
				95					100	
Ala	Asp	Lys	Tyr	Lys	Asp	Lys	Tyr	Val	Asp	
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Val	Phe	Gly	Ala	Asn	Ala	Tyr	Tyr	Gln	Cys	
				115					120	
Ala	Phe	Ser	Lys	Lys	Thr	Asn	Asp	Ile	Asn	
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Ser	His	Gln	Thr	Asp	Lys	Arg	Lys	Thr	Cys	
				135					140	
Met	Tyr	Gly	Gly	Val	Thr	Glu	His	Asn	Gly	
				145					150	
Asn	Gln	Leu	Asp	Lys	Tyr	Arg	Ser	Ile	Thr	
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Val	Arg	Val	Phe	Glu	Asp	Gly	Lys	Asn	Leu	
				165					170	
Leu	Ser	Phe	Asp	Val	Gln	Tyr	Asn	Lys	Lys	
				175					180	
Lys	Val	Thr	Ala	Gln	Glu	Leu	Asp	Tyr	Leu	
				185					190	
Thr	Arg	His	Tyr	Leu	Val	Lys	Asn	Lys	Lys	
				195					200	
Leu	Tyr	Glu	Phe	Asn	Asn	Ser	Pro	Tyr	Glu	
				205					210	
Thr	Gly	Tyr	Ile	Lys	Phe	Ile	Glu	Asn	Glu	
				215					220	
Asn	Ser	Phe	Trp	Tyr	Asp	Met	Met	Pro	Ala	
				225					230	
Pro	Gly	Asp	Lys	Phe	Asp	Gln	Ser	Lys	Tyr	
				235					240	
Leu	Met	Met	Tyr	Asn	Asp	Asn	Lys	Met	Val	
				245					250	
Asp	Ser	Lys	Asp	Val	Lys	Ile	Glu	Val	Tyr	
				255					260	
Leu	Thr	Thr	Lys	Lys	Lys					
				265						

&lt;210&gt; 9

&lt;211&gt; 1388

&lt;212&gt; DNA

10/33

<213> Artificial sequence

<220>

<223> mutant staphylococcal enterotoxin B cytoplasmic

<400> 9

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atagatcaat	ttcgatactt	tgacttaata	tattctatta	160
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tacgtagatg	tgtttgaggc	taatgcttat	tatcaatgtg	280
ctttttctaa	aaaaacgaat	gatattaatt	cgcaccaaac	320
tgacaaacga	aaaacttgta	tgtatgggtg	tgtaactgag	360
cataatggaa	accaattaga	taaatataga	agtattactg	400
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taaatttata	gaaaatgaga	atagcttttg	gtatgacatg	600
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<210> 10

<211> 239

<212> PRT

<213> Artificial sequence

11/33

<220>

<223> mutant staphylococcal enterotoxin B cytoplasmic

<400> 10

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Met	Glu	Asn	Met	Lys	Val	Leu	Tyr	Asp	Asp	
				25					30	
Asn	His	Val	Ser	Ala	Ile	Asn	Val	Lys	Ser	
				35					40	
Ile	Asp	Gln	Phe	Arg	Tyr	Phe	Asp	Leu	Ile	
				45					50	
Tyr	Ser	Ile	Lys	Asp	Thr	Lys	Leu	Gly	Asn	
				55					60	
Tyr	Asp	Asn	Val	Arg	Val	Glu	Phe	Lys	Asn	
				65					70	
Lys	Asp	Leu	Ala	Asp	Lys	Tyr	Lys	Asp	Lys	
				75					80	
Tyr	Val	Asp	Val	Phe	Gly	Ala	Asn	Ala	Tyr	
				85					90	
Tyr	Gln	Cys	Ala	Phe	Ser	Lys	Lys	Thr	Asn	
				95					100	
Asp	Ile	Asn	Ser	His	Gln	Thr	Asp	Lys	Arg	
				105					110	
Lys	Thr	Cys	Met	Tyr	Gly	Gly	Val	Thr	Glu	
				115					120	
His	Asn	Gly	Asn	Gln	Leu	Asp	Lys	Tyr	Arg	
				125					130	
Ser	Ile	Thr	Val	Arg	Val	Phe	Glu	Asp	Gly	
				135					140	
Lys	Asn	Leu	Leu	Ser	Phe	Asp	Val	Gln	Thr	
				145					150	
Asn	Lys	Lys	Lys	Val	Thr	Ala	Gln	Glu	Leu	
				155					160	
Asp	Tyr	Leu	Thr	Arg	His	Tyr	Leu	Val	Lys	
				165					170	
Asn	Lys	Lys	Leu	Tyr	Glu	Phe	Asn	Asn	Ser	
				175					180	
Pro	Tyr	Glu	Thr	Gly	Tyr	Ile	Lys	Phe	Ile	
				185					190	
Glu	Asn	Glu	Asn	Ser	Phe	Trp	Tyr	Asp	Met	
				195					200	
Met	Pro	Ala	Pro	Gly	Asp	Lys	Phe	Asp	Gln	
				205					210	
Ser	Lys	Tyr	Leu	Met	Met	Tyr	Asn	Asp	Asn	
				215					220	
Lys	Met	Val	Asp	Ser	Lys	Asp	Val	Lys	Ile	
				225					230	
Glu	Val	Tyr	Leu	Thr	Thr	Lys	Lys	Lys		
				235						

12/33

<210> 11

<211> 731

<212> DNA

<213> Artificial sequence

<220>

<223> toxin shock syndrome toxin-1 mutant

<400> 11

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taaggagaat taaaaatgaa taaaaaatta ctaatgaatt      40
tttttatcgt aagccctttg ttgcttgaga caactgctac      80
agattttacc cctgttccct tatcatctaa tcaaataatc     120
aaaactgcaa aagcatctac aaacgataat ataaaggatt     160
tgctagactg gtatagtagt gggctctgaca cttttacaaa     200
tagtgaagtt ttagataatt ccagaggatc tatgcgata      240
aaaaacacag atggcagcat cagcttgata atttttccga     280
gtccttatta tagccctgct ttacaaaag gggaaaaagt     320
tgacttaaac acaaaaagaa ctaaaaaaag ccaacatact     360
agcgaaggaa cttatatcca ttccaaata agtggcggtta     400
caaatactga aaaattacct actccaatag aactaccttt     440
aaaagttaag gttcatggta aagatagccc cttaaagtat     480
gggccaaagt tcgataaaaa acaattagct atatcaactt     520
tagactttga aattcgatcat cagctaactc aaatacatgg     560
attatatcgt tcaagcgata aaacgggtgg ttattggaaa     600
ataacaatga atgacggatc cacatatcaa agtgatttat     640
ctaaaaagtt tgaatacaat actgaaaaac cacctataaa     680
tattgatgaa ataaaaacta tagaagcaga aattaattaa     720
tttaccactt t                                     731
```

<210> 12

<211> 234

<212> PRT

<213> Artificial sequence

<220>

<223> toxin shock syndrom toxin-1 mutant

<400> 12

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Met Asn Lys Lys Leu Leu Met Asn Phe Phe
      5                               10
Ile Val Ser Pro Leu Leu Leu Ala Thr Thr
      15                             20
```

Ala	Thr	Asp	Phe	Thr	Pro	Val	Pro	Leu	Ser	
				25					30	
Ser	Asn	Gln	Ile	Ile	Lys	Thr	Ala	Lys	Ala	
				35					40	
Ser	Thr	Asn	Asp	Asn	Ile	Lys	Asp	Leu	Leu	
				45					50	
Asp	Trp	Tyr	Ser	Ser	Gly	Ser	Asp	Thr	Phe	
				55					60	
Thr	Asn	Ser	Glu	Val	Leu	Asp	Asn	Ser	Arg	
				65					70	
Gly	Ser	Met	Arg	Ile	Lys	Asn	Thr	Asp	Gly	
				75					80	
Ser	Ile	Ser	Leu	Ile	Ile	Phe	Pro	Ser	Pro	
				85					90	
Tyr	Tyr	Ser	Pro	Ala	Phe	Thr	Lys	Gly	Glu	
				95					100	
Lys	Val	Asp	Leu	Asn	Thr	Lys	Arg	Thr	Lys	
				105					110	
Lys	Ser	Gln	His	Thr	Ser	Glu	Gly	Thr	Tyr	
				115					120	
Ile	His	Phe	Gln	Ile	Ser	Gly	Val	Thr	Asn	
				125					130	
Thr	Glu	Lys	Leu	Pro	Thr	Pro	Ile	Glu	Leu	
				135					140	
Pro	Leu	Lys	Val	Lys	Val	His	Gly	Lys	Asp	
				145					150	
Ser	Pro	Leu	Lys	Tyr	Gly	Pro	Lys	Phe	Asp	
				155					160	
Lys	Lys	Gln	Leu	Ala	Ile	Ser	Thr	Leu	Asp	
				165					170	
Phe	Glu	Ile	Arg	His	Gln	Leu	Thr	Gln	Ile	
				175					180	
His	Gly	Leu	Tyr	Arg	Ser	Ser	Asp	Lys	Thr	
				185					190	
Gly	Gly	Tyr	Trp	Lys	Ile	Thr	Met	Asn	Asp	
				195					200	
Gly	Ser	Thr	Tyr	Gln	Ser	Asp	Leu	Ser	Lys	
				205					210	
Lys	Phe	Glu	Tyr	Asn	Thr	Glu	Lys	Pro	Pro	
				215					220	
Ile	Asn	Ile	Asp	Glu	Ile	Lys	Thr	Ile	Glu	
				225					230	
Ala	Glu	Ile	Asn							

&lt;210&gt; 13

&lt;211&gt; 1095

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; staphylococcal enterotoxin C-1 mutant

&lt;400&gt; 13

```

atcattaaat ataattaatt ttcttttaaat attttttttaa      40
ttgaatatatt aagattataa gatatatatta aagtgtatct      80
agatactttt  tgggaatggt ggatgaagga gataaaaaatg     120
aataagagtc  gattttattc atgcgtaatt ttgatattcg      160
cactttatact agttcttttt acaccaaacg tattagcaga      200
gagccaacca  gaccctacgc cagatgagtt gcacaaagcg      240
agtaaattca  ctggtttgat ggaaaatatg aaagttttat      280
atgatgatca  ttatgtatca gcaactaaag ttaagtctgt      320
agataaattt  agggcacatg atttaattta taacattagt      360
gataaaaaac  tgaaaaatta tgacaaagtg aaaacagagt      400
tattaaatga  aggttttagca aagaagtaca aagatgaagt      440
agttgatgtg  tatggatcaa attactatgt aaactgctat      480
ttttcatcca  aagataatgt aggtaaagtt acaggtggca      520
aaacttgtat  gtatggagga ataacaaaac atgaaggaaa      560
ccactttgat  aatgggaact tacaaaatgt acttataaga      600
gtttatgaaa  ataaaagaaa cacaatttct tttgaagtgc      640
aaactgataa  gaaaagtgtg acagctcaag aactagacat      680
aaaagctagg  aattttttaa ttaataaaaa aaatttgtat      720
gagtttaaca  gttcaccata tgaaacagga tatataaaat      760
ttattgaaaa  taacggcaat actttttggt atgatatgat      800
gcctgcacca  ggcgataagt ttgaccaatc taaatattta      840
atgatgtaca  acgacaataa aacggttgat tctaaaagtg      880
tgaagataga  agtccacctt acaacaaaga atggataatg      920
ttaatccgat  tttgatataa aaagtgaag  tattagatat      960
atttgaaagg  taagtacttc ggtgcttgcc tttttaggat     1000
gcatatatat  agattaaacc gcacttctat attaatagaa     1040
agtgcygtta  tttatacact caatctaaac tataataatt     1080
ggaatcatct  tcaaa                                1095

```

&lt;210&gt; 14

&lt;211&gt; 266

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; staphylococcal enterotoxin C-1 mutant

&lt;400&gt; 14

```

Met Asn Lys Ser Arg Phe Ile Ser Cys Val
      5              10
Ile Leu Ile Phe Ala Leu Ile Leu Val Leu
      15              20

```

Phe Thr Pro Asn	Val Leu Ala Glu Ser Gln	25	30
Pro Asp Pro Thr	Pro Asp Glu Leu His Lys	35	40
Ala Ser Lys Phe	Thr Gly Leu Met Glu Asn	45	50
Met Lys Val Leu	Tyr Asp Asp His Tyr Val	55	60
Ser Ala Thr Lys	Val Lys Ser Val Asp Lys	65	70
Phe Arg Ala His	Asp Leu Ile Tyr Asn Ile	75	80
Ser Asp Lys Lys	Leu Lys Asn Tyr Asp Lys	85	90
Val Lys Thr Glu	Leu Leu Asn Glu Gly Leu	95	100
Ala Lys Lys Tyr	Lys Asp Glu Val Val Asp	105	110
Val Tyr Gly Ser	Asn Tyr Tyr Val Asn Cys	115	120
Tyr Phe Ser Ser	Lys Asp Asn Val Gly Lys	125	130
Val Thr Gly Gly	Lys Thr Cys Met Tyr Gly	135	140
Gly Ile Thr Lys	His Glu Gly Asn His Phe	145	150
Asp Asn Gly Asn	Leu Gln Asn Val Leu Ile	155	160
Arg Val Tyr Glu	Asn Lys Arg Asn Thr Ile	165	170
Ser Phe Glu Val	Gln Thr Asp Lys Lys Ser	175	180
Val Thr Ala Gln	Glu Leu Asp Ile Lys Ala	185	190
Arg Asn Phe Leu	Ile Asn Lys Lys Asn Leu	195	200
Tyr Glu Phe Asn	Ser Ser Phe Tyr Glu Thr	205	210
Gly Tyr Ile Lys	Phe Ile Glu Asn Asn Gly	215	220
Asn Thr Phe Trp	Tyr Asp Met Met Pro Ala	225	230
Pro Gly Asp Lys	Phe Asp Gln Ser Lys Tyr	235	240
Leu Met Met Tyr	Asn Asp Asn Lys Thr Val	245	250
Asp Ser Lys Ser	Val Lys Ile Glu Val His	255	260
Leu Thr Thr Lys	Asn Gly	265	

&lt;211&gt; 1837

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; streptococcal pyrogenic exotoxin-A mutant

&lt;400&gt; 15

tcatgtttga	cagcttatca	tcgataagct	tacttttcga	40
atcaggtcta	tccttgaaac	aggtgcaaca	tagattaggg	80
catggagatt	taccagacaa	ctatgaacgt	atatactcac	120
atcacgcaat	cggcaattga	tgacattgga	actaaattca	160
atcaatttgt	tactaacaag	caactagatt	gacaactaat	200
tctcaacaaa	cgttaattta	acaacattca	agtaactccc	240
accagctcca	tcaatgctta	ccgtaagtaa	tcataactta	280
ctaaaacctt	gttacatcaa	ggttttttct	ttttgtcttg	320
ttcatgagtt	accataactt	totatattat	tgacaactaa	360
attgacaact	cttcaattat	ttttctgtct	actcaaagtt	400
ttcttcattt	gatatagtct	aattccacca	tcacttcttc	440
cactctctct	accgtcacia	cttcacatc	tctcactttt	480
tcgtgtggta	acacataatc	aaatatcttt	ccgtttttac	520
gcactatcgc	tactgtgtca	cctaaaatat	accccttate	560
aatcgcttct	ttaaactcat	ctatatataa	catatttcat	600
cctcctacct	atctattcgt	aaaaagataa	aaataactat	640
tggttttttt	gttattttat	aataaaatta	ttaataataag	680
ttaatgtttt	ttaaaaatat	acaattttat	tctattttata	720
gttagctatt	ttttcattgt	tagtaatatt	ggtgaattgt	760
aataaccttt	ttaaactctag	aggagaaccc	agatataaaa	800
tggagggaata	ttaatggaaa	acaataaaaa	agtattgaag	840
aaaatggtat	tttttgtttt	agtgacattt	cttggaactaa	880
caatctcgca	agaggtattt	gctcaacaag	accccgatcc	920
aagccaactt	cacagatcta	gtttagttaa	aaaccttcaa	960
aatatatatt	ttctttatga	gggtgaccct	gttactcacg	1000
agaatgtgaa	atctgttgat	caacttagat	ctcacgattt	1040
aatatataat	gtttcagggc	caaattatga	taaattaaaa	1080
actgaactta	agaaccaaga	gatggcaact	ttatttaagg	1120
ataaaaaacgt	tgatatttat	ggtgtagaat	attaccatct	1160
ctgttattta	tgtgaaaatg	cagaaaggag	tgcatgtatc	1200
tacggagggg	taacaaatca	tgaaggaaat	catttagaaa	1240
ttcctaaaaa	gatagtcgtt	aaagtatcaa	tcgatgggtat	1280
ccaaagccta	tcatttgata	ttgaaacaaa	taaaaaaatg	1320
gtaactgctc	aagaattaga	ctataaagtt	agaaaatatc	1360
ttacagataa	taagcaacta	tatactaattg	gaccttctaa	1400
atatgaaact	ggatatataa	agttcatacc	taagaataaaa	1440
gaaagttttt	ggtttgattt	tttccctgaa	ccagaattta	1480
ctcaatctaa	atatcttatg	atatataaaag	ataatgaaac	1520
gcttgactca	aacacaagcc	aaattgaagt	ctacctaaca	1560
accaagtaac	tttttgcttt	tggcaacctt	acctactgct	1600
ggatttcagaa	attttattgc	aattctttta	ttaatgtaaa	1640
aaccgctcat	ttgatgagcg	gttttgcttt	atctaaagga	1680



```

gctttacctc ctaatgctgc aaaatttttaa atgttggatt 1720
tttgtatttg tctattgtat ttgatgggta atcccatttt 1760
tcgacagaca tcgtcgtgcc acctctaaca ccaaaatcat 1800
agacaggagc ttgtagetta gcaactattt tatcgtc 1837

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&lt;210&gt; 16

&lt;211&gt; 251

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; streptococcal pyrogenic exotoxin-A mutant

&lt;400&gt; 16

```

Met Glu Asn Asn Lys Lys Val Leu Lys Lys
      5                      10
Met Val Phe Phe Val Leu Val Thr Phe Leu
      15                      20
Gly Leu Thr Ile Ser Gln Glu Val Phe Ala
      25                      30
Gln Gln Asp Pro Asp Pro Ser Gln Leu His
      35                      40
Arg Ser Ser Leu Val Lys Asn Leu Gln Asn
      45                      50
Ile Tyr Phe Leu Tyr Glu Gly Asp Pro Val
      55                      60
Thr His Glu Asn Val Lys Ser Val Asp Gln
      65                      70
Leu Arg Ser His Asp Leu Ile Tyr Asn Val
      75                      80
Ser Gly Pro Asn Tyr Asp Lys Leu Lys Thr
      85                      90
Glu Leu Lys Asn Gln Glu Met Ala Thr Leu
      95                     100
Phe Lys Asp Lys Asn Val Asp Ile Tyr Gly
     105                     110
Val Glu Tyr Tyr His Leu Cys Tyr Leu Cys
     115                     120
Glu Asn Ala Glu Arg Ser Ala Cys Ile Tyr
     125                     130
Gly Gly Val Thr Asn His Glu Gly Asn His
     135                     140
Leu Glu Ile Pro Lys Lys Ile Val Val Lys
     145                     150
Val Ser Ile Asp Gly Ile Gln Ser Leu Ser
     155                     160
Phe Asp Ile Glu Thr Asn Lys Lys Met Val
     165                     170
Thr Ala Gln Glu Leu Asp Tyr Lys Val Arg

```

	175	180
Lys Tyr Leu Thr Asp Asn Lys Gln Leu Tyr		
	185	190
Thr Asn Gly Pro Ser Lys Tyr Glu Thr Gly		
	195	200
Tyr Ile Lys Phe Ile Pro Lys Asn Lys Glu		
	205	210
Ser Phe Trp Phe Asp Phe Phe Pro Glu Pro		
	215	220
Glu Phe Thr Gln Ser Lys Tyr Leu Met Ile		
	225	230
Tyr Lys Asp Asn Glu Thr Leu Asp Ser Asn		
	235	240
Thr Ser Gln Ile Glu Val Tyr Leu Thr Thr		
	245	250
Lys		

&lt;210&gt; 17

&lt;211&gt; 28

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; primer

&lt;400&gt; 17

ctcgcaagag gtacatatgc aacaagac 28

&lt;210&gt; 18

&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; primer

&lt;400&gt; 18

gcagtaggta agcttgccaa aagc 24

&lt;210&gt; 19

&lt;211&gt; 34

<212> DNA

<213> Artificial sequence

<220>

<223> primer

<400> 19

gatatacata tgcaacaaga ccccgatcca agcc 34

<210> 20

<211> 37

<212> DNA

<213> Artificial sequence

<220>

<223> primer

<400> 20

gagattttaac aactgggttgc ttggttggtta ggtagac 37

<210> 21

<211> 37

<212> DNA

<213> Artificial sequence

<220>

<223> primer

<400> 21

gtctacctaa caaccaagca accagttggtt aaatctc 37

<210> 22

<211> 27

<212> DNA

<213> Artificial sequence

&lt;220&gt;

&lt;223&gt; primer

&lt;400&gt; 22

gaattcggat ccgctagcct acaacag

27

&lt;210&gt; 23

&lt;211&gt; 1419

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant SpeA/mutant SpeB fusion

&lt;400&gt; 23

atgcaacaag	accccgatcc	aagccaactt	cacagatcta	40
gtttagttaa	aaaccttcaa	aatatatatt	ttctttatga	80
gggtgaccct	gttactcacg	agaatgtgaa	atctgttgat	120
caacttcgat	ctcacgattt	aatatataat	gtttcagggc	160
caaa'tatga	taaattaaaa	actgaactta	agaaccaaga	200
gatggcaact	ttatttaagg	ataaaaacat	tgatatttat	240
ggtgtagaat	attaccatct	ctggtattta	tgtgaaaatg	280
cagaaaggag	tgcattgtatc	tacggagggg	taacaaatcg	320
tgaagggaat	catttagaaa	ttcctaaaaa	gatagtcgtc	360
aaagtatcaa	tcgatggtat	acaaagccta	tcatttgata	400
ttgaaacaaa	taaaaaaatg	gtaactgctc	aagaattaga	440
ctataaagtt	agaaaatatc	ttacagataa	taagcaacta	480
tatactaagt	gaccttctaa	atatgaaact	ggatatataa	520
agttcatacc	taagaataaa	gaaagttttt	ggtttgattt	560
tttccttgaa	ccagaattta	ctcaatctaa	atatcttatg	600
atatataaag	ataatgaaac	gcttgactca	aacacaagcc	640
aaattgaagt	ctacctaaca	accaagcaac	cagttgttaa	680
atctctcctt	gattcaaaaag	gcattcatta	caatcaaggt	720
aacccttaca	acctattgac	acctggtatt	gaaaaagtaa	760
aaccaggtga	acaatctttt	gtagggtcaac	atgcagctac	800
aggatgtggt	gctactgcaa	ctgctcaa	tatgaaatat	840
cataattacc	ctaacaaagg	gttgaaagac	tacacttaca	880
cactaagctc	aaataaccca	tatttcaacc	atcctaagaa	920
cttgtttgca	gctatctcta	ctagacaata	caactggaac	960
aacatcctac	ctacttatag	cggaagagaa	tctaacgttc	1000
aaaaaatggc	gatttcagaa	ttgatggctg	atggttggtat	1040
ttcagtagac	atggattatg	gtccatctag	tggttctgca	1080
ggtagctctc	gtgttcaaag	agccttgaaa	gaaaactttg	1120
gctacaacca	atctgttcac	caaatacaacc	gtagcgactt	1160
tagcaaacaa	gattgggaag	cacaaattga	caaagaatta	1200
tctcaaaacc	aaccagtata	ctaccaaggt	gtcggtaaag	1240

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taggcggaca tgcctttggt atcgatggtg ctgacggacg 1280
taacttctac catgttaact ggggttgggg tggagtctct 1320
gacggcttct tccgtcttga cgcactaaac ccttcagctc 1360
ttggtactgg tggcggcgca ggcggcttca acggttacca 1400
aagtgctggt gtaggctag 1419

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&lt;210&gt; 24

&lt;211&gt; 398

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant streptococcal pyrogenic exotoxin B prosegment

&lt;400&gt; 24

```

Met Asn Lys Lys Lys Leu Gly Ile Arg Leu
      5      10
Leu Ser Leu Leu Ala Leu Gly Gly Phe Val
      15      20
Leu Ala Asn Pro Val Phe Ala Asp Gln Asn
      25      30
Phe Ala Arg Asn Glu Lys Glu Ala Lys Asp
      35      40
Ser Ala Ile Thr Phe Ile Gln Lys Ser Ala
      45      50
Ala Ile Lys Ala Gly Ala Arg Ser Ala Glu
      55      60
Asp Ile Lys Leu Asp Lys Val Asn Leu Gly
      65      70
Gly Glu Leu Ser Gly Ser Asn Met Tyr Gly
      75      80
Tyr Asn Ile Ser Thr Gly Gly Phe Val Ile
      85      90
Val Ser Gly Asp Lys Arg Ser Pro Glu Ile
      95     100
Leu Gly Tyr Ser Thr Ser Gly Ser Phe Asp
     105     110
Ala Asn Gly Lys Glu Asn Ile Ala Ser Phe
     115     120
Met Glu Ser Tyr Val Glu Gln Ile Lys Glu
     125     130
Asn Lys Lys Leu Asp Thr Thr Tyr Ala Gly
     135     140
Thr Ala Glu Ile Lys Gln Pro Val Val Lys
     145     150
Ser Leu Leu Asp Ser Lys Gly Ile His Tyr
     155     160
Asn Gln Gly Asn Pro Tyr Asn Leu Leu Thr

```

				165					170
Pro	Val	Ile	Glu	Lys	Val	Lys	Pro	Gly	Glu
				175					180
Gln	Ser	Phe	Val	Gly	Gln	His	Ala	Ala	Thr
				185					190
Gly	Cys	Val	Ala	Thr	Ala	Thr	Ala	Gln	Ile
				195					200
Met	Lys	Tyr	His	Asn	Tyr	Pro	Asn	Lys	Gly
				205					210
Leu	Lys	Asp	Tyr	Thr	Tyr	Thr	Leu	Ser	Ser
				215					220
Asn	Asn	Pro	Tyr	Phe	Asn	His	Pro	Lys	Asn
				225					230
Leu	Phe	Ala	Ala	Ile	Ser	Thr	Arg	Gln	Tyr
				235					240
Asn	Trp	Asn	Asn	Ile	Leu	Pro	Thr	Tyr	Ser
				245					250
Gly	Arg	Glu	Ser	Asn	Val	Gln	Lys	Met	Ala
				255					260
Ile	Ser	Glu	Leu	Met	Ala	Asp	Val	Gly	Ile
				265					270
Ser	Val	Asp	Met	Asp	Tyr	Gly	Pro	Ser	Ser
				275					280
Gly	Ser	Ala	Gly	Ser	Ser	Arg	Val	Gln	Arg
				285					290
Ala	Leu	Lys	Glu	Asn	Phe	Gly	Tyr	Asn	Gln
				295					300
Ser	Val	His	Gln	Ile	Asn	Arg	Gly	Asp	Phe
				305					310
Ser	Lys	Gln	Asp	Trp	Glu	Ala	Gln	Ile	Asp
				315					320
Lys	Glu	Leu	Ser	Gln	Asn	Gln	Pro	Val	Tyr
				325					330
Tyr	Gln	Gly	Val	Gly	Lys	Val	Gly	Gly	His
				335					340
Ala	Phe	Val	Ile	Asp	Gly	Ala	Asp	Gly	Arg
				345					350
Asn	Phe	Tyr	His	Val	Asn	Trp	Gly	Trp	Gly
				355					360
Gly	Val	Ser	Asp	Gly	Phe	Phe	Arg	Leu	Asp
				365					370
Ala	Leu	Asn	Pro	Ser	Ala	Leu	Gly	Thr	Gly
				375					380
Gly	Gly	Ala	Gly	Gly	Phe	Asn	Gly	Tyr	Gln
				385					390
Ser	Ala	Val	Val	Gly	Ile	Lys	Pro		
				395					

&lt;210&gt; 25

&lt;211&gt; 248

&lt;212&gt; PRT



Gly Tyr Gln Ser      235      240  
                          Ala Val Val Gly  
                          245

<210> 26

<211> 220

<212> PRT

<213> Artificial sequence

<220>

<223> mutant streptococcal pyrogenic exotoxin-A

<400> 26

Met	Gln	Gln	Asp	Pro	Asp	Pro	Ser	Gln	Leu		
				5					10		
His	Arg	Ser	Ser	Leu	Val	Lys	Asn	Leu	Gln		
				15					20		
Asn	Ile	Tyr	Phe	Leu	Tyr	Glu	Gly	Asp	Pro		
				25					30		
Val	Thr	His	Glu	Asn	Val	Lys	Ser	Val	Asp		
				35					40		
Gln	Leu	Arg	Ser	His	Asp	Leu	Ile	Tyr	Asn		
				45					50		
Val	Ser	Gly	Pro	Asn	Tyr	Asp	Lys	Leu	Lys		
				55					60		
Thr	Glu	Leu	Lys	Asn	Gln	Glu	Met	Ala	Thr		
				65					70		
Leu	Phe	Lys	Asp	Lys	Asn	Ile	Asp	Ile	Tyr		
				75					80		
Gly	Val	Glu	Tyr	Tyr	His	Leu	Cys	Tyr	Leu		
				85					90		
Cys	Glu	Asn	Ala	Glu	Arg	Ser	Ala	Cys	Ile		
				95					100		
Gly	Gly	Val	Thr	Asn	Arg	Glu	Gly	Asn	His		
				105					110		
Leu	Glu	Ile	Pro	Lys	Lys	Ile	Val	Val	Lys		
				115					120		
Val	Ser	Ile	Asp	Gly	Ile	Gln	Ser	Leu	Ser		
				125					130		
Phe	Asp	Ile	Glu	Thr	Asn	Lys	Lys	Met	Val		
				135					140		
Thr	Ala	Gln	Glu	Leu	Asp	Tyr	Lys	Val	Arg		
				145					150		
Lys	Tyr	Leu	Thr	Asp	Asn	Lys	Gln	Leu	Tyr		
				155					160		
Thr	Asn	Gly	Pro	Ser	Lys	Tyr	Glu	Thr	Gly		
				165					170		
Tyr	Ile	Lys	Phe	Ile	Pro	Lys	Asn	Lys	Glu		



				175					180
Ser	Phe	Trp	Phe	Asp	Phe	Phe	Pro	Glu	Pro
				185					190
Glu	Phe	Thr	Gln	Ser	Lys	Tyr	Leu	Met	Ile
				195					200
Tyr	Lys	Asp	Asn	Glu	Thr	Leu	Asp	Ser	Asn
				205					210
Thr	Gln	Ile	Glu	Val	Tyr	Leu	Thr	Thr	Lys
				215					220

&lt;210&gt; 27

&lt;211&gt; 468

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; mutant SpeA-mutant SpeB fusion

&lt;400&gt; 27

Met	Gln	Gln	Asp	Pro	Asp	Pro	Ser	Gln	Leu
				5					10
His	Arg	Ser	Ser	Leu	Val	Lys	Asn	Leu	Gln
				15					20
Asn	Ile	Tyr	Phe	Leu	Tyr	Glu	Gly	Asp	Pro
				25					30
Val	Thr	His	Glu	Asn	Val	Lys	Ser	Val	Asp
				35					40
Gln	Leu	Arg	Ser	His	Asp	Leu	Ile	Tyr	Asn
				45					50
Val	Ser	Gly	Pro	Asn	Tyr	Asp	Lys	Leu	Lys
				55					60
Thr	Glu	Leu	Lys	Asn	Gln	Glu	Met	Ala	Thr
				65					70
Leu	Phe	Lys	Asp	Lys	Asn	Ile	Asp	Ile	Tyr
				75					80
Gly	Val	Glu	Tyr	Tyr	His	Leu	Cys	Tyr	Leu
				85					90
Cys	Glu	Asn	Ala	Glu	Arg	Ser	Ala	Cys	Ile
				95					100
Gly	Gly	Val	Thr	Asn	Arg	Glu	Gly	Asn	His
				105					110
Leu	Glu	Ile	Pro	Lys	Lys	Ile	Val	Val	Lys
				115					120
Val	Ser	Ile	Asp	Gly	Ile	Gln	Ser	Leu	Ser
				125					130
Phe	Asp	Ile	Glu	Thr	Asn	Lys	Lys	Met	Val
				135					140
Thr	Ala	Gln	Glu	Leu	Asp	Tyr	Lys	Val	Arg
				145					150

Lys	Tyr	Leu	Thr	Asp	Asn	Lys	Gln	Leu	Tyr	
				155					160	
Thr	Asn	Gly	Pro	Ser	Lys	Tyr	Glu	Thr	Gly	
				165					170	
Tyr	Ile	Lys	Phe	Ile	Pro	Lys	Asn	Lys	Glu	
				175					180	
Ser	Phe	Trp	Phe	Asp	Phe	Phe	Pro	Glu	Pro	
				185					190	
Glu	Phe	Thr	Gln	Ser	Lys	Tyr	Leu	Met	Ile	
				195					200	
Tyr	Lys	Asp	Asn	Glu	Thr	Leu	Asp	Ser	Asn	
				205					210	
Thr	Gln	Ile	Glu	Val	Tyr	Leu	Thr	Thr	Lys	
				215					220	
Gln	Pro	Val	Val	Lys	Ser	Leu	Leu	Asp	Ser	
				225					230	
Lys	Gly	Ile	His	Tyr	Asn	Gln	Gly	Asn	Pro	
				235					240	
Tyr	Asn	Leu	Leu	Thr	Pro	Val	Ile	Glu	Lys	
				245					250	
Val	Lys	Pro	Gly	Glu	Gln	Ser	Phe	Val	Gly	
				255					260	
Gln	His	Ala	Ala	Thr	Gly	Cys	Val	Ala	Thr	
				265					270	
Ala	Thr	Ala	Gln	Ile	Met	Lys	Tyr	His	Asn	
				275					280	
Tyr	Pro	Asn	Lys	Gly	Leu	Lys	Asp	Tyr	Thr	
				285					290	
Tyr	Thr	Leu	Ser	Ser	Asn	Asn	Pro	Tyr	Phe	
				295					300	
Asn	His	Pro	Lys	Asn	Leu	Phe	Ala	Ala	Ile	
				305					310	
Ser	Thr	Arg	Gln	Tyr	Asn	Trp	Asn	Asn	Ile	
				315					320	
Leu	Pro	Thr	Tyr	Ser	Gly	Arg	Glu	Ser	Asn	
				325					330	
Val	Gln	Lys	Met	Ala	Ile	Ser	Glu	Leu	Met	
				335					340	
Ala	Asp	Val	Gly	Ile	Ser	Val	Asp	Met	Asp	
				345					350	
Tyr	Gly	Pro	Ser	Ser	Gly	Ser	Ala	Gly	Ser	
				355					360	
Ser	Arg	Val	Gln	Arg	Ala	Leu	Lys	Glu	Asn	
				365					370	
Phe	Gly	Tyr	Asn	Gln	Ser	Val	His	Gln	Ile	
				375					380	
Asn	Arg	Ser	Asp	Phe	Ser	Gln	Asp	Trp	Glu	
				385					390	
Ala	Gln	Ile	Asp	Lys	Glu	Leu	Ser	Gln	Asn	
				395					400	
Gln	Pro	Val	Tyr	Tyr	Gln	Gly	Gly	Lys	Val	
				405					410	
Gly	Gly	His	Ala	Phe	Val	Ile	Asp	Gly	Ala	
				415					420	

Asp	Gly	Arg	Asn	Phe	Tyr	His	Val	Asn	Trp	
				425					430	
Gly	Trp	Gly	Gly	Val	Ser	Asp	Gly	Phe	Phe	
				435					440	
Arg	Leu	Asp	Ala	Leu	Asn	Pro	Ser	Ala	Leu	
				445					450	
Gly	Thr	Gly	Gly	Gly	Ala	Gly	Gly	Phe	Asn	
				455					460	
Gly	Tyr	Gln	Ser	Ala	Val	Val	Gly			
				465						

&lt;210&gt; 28

&lt;211&gt; 34

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt;

&lt;400&gt; 28

gatatacata tgcaacaaga ccccgatcca agcc

34

&lt;210&gt; 29

&lt;211&gt; 36

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Primer

&lt;400&gt; 29

catgtgtata tctccttcct tggttggttag gtagac

36

&lt;210&gt; 30

&lt;211&gt; 36

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<400> 30

gtctacctaa caaccaagga aggagatata cacatg

36

<210> 31

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer

<400> 31

gaattccggat ccgctagcct acaacag

27

<210> 32

<211> 82

<212> PRT

<213> staphylococcal enterotoxin A

$\langle 220 \rangle$

<223> partial sequence as shown in Figure 3

<400> 32

Ser	His	Asp	Gln	Phe 5	Leu	Gln	His	Thr	Ile 10
Leu	Phe	Lys	Gly	Phe 15	Phe	Thr	Asp	His	Ser 20
Trp	Tyr	Asn	Asp	Leu 25	Leu	Val	Asp	Phe	Asp 30
Ser	Lys	Asp	Ile	Val 35	Asp	Lys	Tyr	Lys	Gly 40
Lys	Lys	Val	Asp	Leu 45	Tyr	Gly	Ala	Tyr	Tyr 50
Gly	Tyr	Gln	Cys	Ala 55	Gly	Gly	Thr	Pro	Asn 60
Lys	Thr	Ala	Cys	Met 65	Tyr	Gly	Gly	Val	Thr 70
Leu	His	Asp	Asn	Asn 75	Arg	Leu	Thr	Glu	Glu 80
Lys	Lys								

29/33

<210> 33

<211> 82

<212> PRT

<213> staphylococcal enterotoxin D

<220>

<223> partial sequence as shown in Figure 3

<400> 33

Thr	Gly	Asp	Gln	Phe	Leu	Glu	Asn	Thr	Leu	
				5					10	
Leu	Tyr	Lys	Lys	Phe	Phe	Thr	Asp	Leu	Ile	
				15					20	
Asn	Phe	Glu	Asp	Leu	Leu	Ile	Asn	Phe	Asn	
				25					30	
Ser	Lys	Glu	Met	Ala	Gln	His	Phe	Lys	Ser	
				35					40	
Lys	Asn	Val	Asp	Val	Tyr	Pro	Ile	Arg	Tyr	
				45					50	
Ser	Ile	Asn	Cys	Tyr	Gly	Gly	Glu	Ile	Asp	
				55					60	
Arg	Thr	Ala	Cys	Thr	Tyr	Gly	Gly	Val	Thr	
				65					70	
Pro	His	Glu	Gly	Asn	Lys	Leu	Lys	Glu	Arg	
				75					80	
Lys	Lys									

<210> 34

<211> 82

<212> PRT

<213> staphylococcal enterotoxin E

<220>

<223> partial sequence as shown in Figure 3

<400> 34

Ser	Asp	Asp	Gln	Phe	Leu	Glu	Asn	Thr	Leu	
				5					10	
Leu	Phe	Lys	Gly	Phe	Phe	Thr	Gly	His	Pro	
				15					20	
Trp	Tyr	Asn	Asp	Leu	Leu	Val	Asp	Leu	Gly	
				25					30	
Ser	Lys	Asp	Ala	Thr	Asn	Lys	Tyr	Lys	Gly	

				35					40
Lys	Lys	Val	Asp	Leu	Tyr	Gly	Ala	Tyr	Tyr
				45					50
Gly	Tyr	Gln	Cys	Ala	Gly	Gly	Thr	Pro	Asn
				55					60
Lys	Thr	Ala	Cys	Met	Tyr	Gly	Gly	Val	Thr
				65					70
Leu	His	Asp	Asn	Asn	Arg	Leu	Thr	Glu	Glu
				75					80
Lys	Lys								

&lt;210&gt; 35

&lt;211&gt; 89

&lt;212&gt; PRT

&lt;213&gt; staphylococcal enterotoxin B

&lt;220&gt;

&lt;223&gt; partial sequence as shown in Figure 3

&lt;400&gt; 35

Ser	Ile	Asp	Gln	Phe	Leu	Tyr	Phe	Asp	Leu
				5					10
Ile	Tyr	Ser	Ile	Lys	Asp	Thr	Lys	Leu	Gly
				15					20
Asn	Tyr	Asp	Asn	Val	Arg	Val	Glu	Phe	Lys
				25					30
Asn	Lys	Asp	Leu	Ala	Asp	Lys	Tyr	Lys	Asp
				35					40
Lys	Tyr	Val	Asp	Val	Phe	Gly	Ala	Asn	Tyr
				45					50
Tyr	Gln	Cys	Tyr	Phe	Ser	Lys	Lys	Thr	Asn
				55					60
Asp	Ile	Asn	Ser	His	Gln	Thr	Asp	Lys	Arg
				65					70
Lys	Thr	Cys	Met	Tyr	Gly	Gly	Val	Thr	Glu
				75					80
His	Asn	Gly	Asn	Gln	Leu	Asp	Lys	Tyr	
				85					

&lt;210&gt; 36

&lt;211&gt; 89

&lt;212&gt; PRT

&lt;213&gt; staphylococcal enterotoxin C1

&lt;220&gt;

<223> partial sequence as shown in Figure 3

<400> 36

Ser	Val	Asp	Lys	Phe	Leu	Ala	His	Asp	Leu		
				5						10	
Ile	Tyr	Asn	Ile	Ser	Asp	Lys	Lys	Leu	Lys		
				15						20	
Asn	Tyr	Asp	Lys	Val	Lys	Thr	Glu	Leu	Leu		
				25						30	
Asn	Glu	Gly	Leu	Ala	Lys	Lys	Tyr	Lys	Asp		
				35						40	
Glu	Val	Val	Asp	Val	Tyr	Gly	Ser	Asn	Tyr		
				45						50	
Tyr	Val	Asn	Cys	Tyr	Phe	Ser	Ser	Lys	Asp		
				55						60	
Asn	Val	Gly	Lys	Val	Thr	Gly	Gly	Lys	Thr		
				65						70	
Cys	Met	Tyr	Gly	Gly	Ile	Thr	Lys	His	Glu		
				75						80	
Gly	Asn	His	Phe	Asp	Asn	Gly	Asn	Leu			
				85							

<210> 37

<211> 89

<212> PRT

<213> staphylococcal enterotoxin C2

<220>

<223> partial sequence as shown in Figure 3

<400> 37

Ser	Val	Asp	Lys	Phe	Leu	Ala	His	Asp	Leu		
				5						10	
Ile	Tyr	Asn	Ile	Ser	Asp	Lys	Lys	Leu	Lys		
				15						20	
Asn	Tyr	Asp	Lys	Val	Lys	Thr	Glu	Leu	Leu		
				25						30	
Asn	Glu	Asp	Leu	Ala	Lys	Lys	Tyr	Lys	Asp		
				35						40	
Glu	Val	Val	Asp	Val	Tyr	Gly	Ser	Asn	Tyr		
				45						50	
Tyr	Val	Asn	Cys	Tyr	Phe	Ser	Ser	Lys	Asp		
				55						60	
Asn	Val	Gly	Lys	Val	Thr	Gly	Gly	Lys	Thr		
				65						70	
Cys	Met	Tyr	Gly	Gly	Ile	Thr	Lys	His	Glu		
				75						80	
Gly	Asn	His	Phe	Asp	Asn	Gly	Asn	Leu			

&lt;210&gt; 38

&lt;211&gt; 89

&lt;212&gt; PRT

&lt;213&gt; staphylococcal enterotoxin C3

&lt;220&gt;

&lt;223&gt; partial sequence as shown in Figure 3

&lt;400&gt; 38

Ser	Val	Asp	Lys	Phe	Leu	Ala	His	Asp	Leu	
				5						10
Ile	Tyr	Asn	Ile	Ser	Asp	Lys	Lys	Leu	Lys	
				15						20
Asn	Tyr	Asp	Lys	Val	Lys	Thr	Glu	Leu	Leu	
				25						30
Asn	Glu	Asp	Leu	Ala	Lys	Lys	Tyr	Lys	Asp	
				35						40
Glu	Val	Val	Asp	Val	Tyr	Gly	Ser	Asn	Tyr	
				45						50
Tyr	Val	Asn	Cys	Tyr	Phe	Ser	Ser	Lys	Asp	
				55						60
Asn	Val	Gly	Lys	Val	Thr	Gly	Gly	Lys	Thr	
				65						70
Cys	Met	Tyr	Gly	Gly	Ile	Thr	Lys	His	Glu	
				75						80
Gly	Asn	His	Phe	Asp	Asn	Gly	Asn	Leu		
				85						

&lt;210&gt; 39

&lt;211&gt; 79

&lt;212&gt; PRT

&lt;213&gt; streptococcal pyrogenic enterotoxin a

&lt;220&gt;

&lt;223&gt; partial sequence as shown in Figure 3

&lt;400&gt; 39

Ser	Val	Asp	Gln	Leu	Leu	Ser	His	Asp	Leu	
				5						10
Ile	Tyr	Asn	Val	Ser	Gly	Pro	Asn	Tyr	Asp	
				15						20
Lys	Leu	Lys	Thr	Glu	Leu	Lys	Asn	Gln	Glu	



				25					30
Met	Ala	Thr	Leu	Phe	Lys	Asp	Lys	Asn	Val
				35					40
Asp	Ile	Tyr	Gly	Val	Glu	Tyr	Tyr	His	Leu
				45					50
Cys	Tyr	Leu	Cys	Glu	Asn	Ala	Glu	Arg	Ser
				55					60
Ala	Cys	Ile	Tyr	Gly	Gly	Val	Thr	Asn	His
				65					70
Glu	Gly	Asn	His	Leu	Glu	Ile	Pro	Lys	
				75					

&lt;210&gt; 40

&lt;211&gt; 73

&lt;212&gt; PRT

&lt;213&gt; toxin shock syndrome toxin-1

&lt;220&gt;

&lt;223&gt; partial sequence as shown in Figure 3

&lt;400&gt; 40

Val	Leu	Asp	Asn	Ser	Leu	Gly	Ser	Met	Arg
				5					10
Ile	Lys	Asn	Thr	Asp	Gly	Ser	Ile	Ser	Leu
				15					20
Ile	Ile	Phe	Pro	Ser	Pro	Tyr	Tyr	Ser	Pro
				25					30
Ala	Phe	Thr	Lys	Gly	Glu	Lys	Val	Asp	Leu
				35					40
Asn	Thr	Lys	Arg	Thr	Lys	Lys	Ser	Gln	His
				45					50
Thr	Ser	Glu	Gly	Thr	Tyr	Ile	His	Phe	Gln
				55					60
Ile	Ser	Gly	Val	Thr	Asn	Thr	Glu	Lys	Leu
				65					70
Pro	Thr	Pro							